

BASIS FOR THE AMENDMENT

Claims 2-4 and 11-22 are active in the present application. Claims 1 and 5-10 have been canceled. Claims 19-22 are new claims. Support for new Claim 19 is found on page 10, lines 24-27. Support for new Claim 20 is found on page 11, lines 3-4. Support for new Claim 21 is found on page 11, line 26. Support for new Claim 22 is found on page 19, line 5. Independent Claim 2 has been amended to require the presence of vapor grown carbon fibers. Support for the amendment is found on page 18, lines 4-5. No new matter is believed to have been added.

REQUEST FOR RECONSIDERATION

Applicants thank Examiner Yuan for the helpful and courteous discussion of January 16, 2004. During the discussion, Applicants' U.S. representative presented arguments that the prior art of record does not teach a negative electrode that contains a lithium titanate of specific surface area characteristics.

Independent Claim 2 is amended herein to require the presence of vapor grown carbon fibers in the negative electrode.

In one aspect of the invention Applicants have described a secondary power source that contains vapor grown carbon fibers. A power source having an activated carbon of the prior art is not favored. This is demonstrated for example by a comparison of Example 1 and Example 5 in Table A (reproduced below for convenience). The difference between Example 1 and Example 5 is in the carbon material of the negative electrode. Example 1 is able to provide a substantially greater initial capacity in mAh in comparison to Example 5 which contains activated carbon (2.13 vs. 1.45 mAh).

Table A

	Initial capacity (mAh)	Change in capacity (%)	Type of carbon material
Example 1	2.13	-6.6	vapor grown fibers
Example 2	2.04	-6.7	vapor grown fibers
Example 3	1.87	-14.6	vapor grown fibers
Example 4	2.08	-18.2	vapor grown fibers
Example 5	1.45	-6.8	activated carbon
Example 6	2.52	-5.8	hard carbon $d_{002}=0.38$
Example 7	2.24	-24.8	hard carbon $d_{002}=0.337$
Example 8	1.98	-6.2	hard carbon $d_{002}=0.38$

Boxed rows are inventive examples.

Applicants have also disclosed that a secondary power source which contains both a lithium salt and an onium salt in the electrode can provide substantially improved performance. In Table 2 on page 27 a number of secondary power sources having different electrolyte compositions are compared (the information of Table 2 is reproduced below in Table B).

Table B

	Initial capacity density		Rate of decrease in capacity (%)	Electrolyte Composition	Type of Carbon Material
	Discharge at 10 mA	Discharge at 200 mA			
Example 9	6.74	4.74	5.7	LiBF ₄ + Et ₃ MeNBF ₄	vapor grown carbon
Example 10	6.83	3.89	5.3	LiBF ₄	vapor grown carbon
Example 11	4.54	4.33	4.7	Et ₃ MeNBF ₄	activated carbon
Example 12	7.23	3.83	20.3	LiBF ₄	dopable carbon

Example 9 in Table B above contains both a lithium salt, vapor grown carbon and an onium salt in the electrolyte. Example 9 is able to provide a high initial capacity density at a discharge of 10mA and a discharge at 200 mA. For comparison, Example 10 contains only a lithium salt in the electrolyte, vapor grown carbon and has a lower initial discharge at both 10 mA and 200 mA. Likewise, Example 11 which contains only an onium salt in the electrolyte has a substantially lower discharge at 10 mA and 200 mA. Applicants have therefore shown that the electrolyte containing both a lithium salt and an onium salt can provide improved performance in comparison to an electrolyte which contains either only a lithium or only an onium salt.

The Office rejected Claims 1-3, 5-7 and 11-13 under 35 U.S.C. § 102(e) in view of a patent to Amatucci (U.S. 6,517,972).

Original dependent Claim 3 limited the carbon material of the negative electrode of independent Claim 2 to those materials having a lattice spacing d₀₀₂ of from 0.335 to 0.41nm. The Office has asserted that Amatucci does not disclose values for the lattice spacing of the prior art carbon materials; however, it is nonetheless the Examiner's position that this

property is inherent to the prior art carbons since “Amatucci and the present application utilize the same electrode active materials”.

Applicants submit that Amatucci nowhere discloses vapor deposited carbon fibers. Further, there is no evidence of record that the prior art carbon materials must have a lattice spacing as claimed in Claim 3. Example 3 of Amatucci (column 5, lines 26-30) discloses only that the carbon material of the negative electrode is “SP conductive carbon powder”.

Applicants submit that the subject matter of dependent Claim 3 is further patentable over the prior art of record on the grounds that the prior art of record is silent with respect to vapor grown carbon fibers, the lattice spacing of the carbon material and nowhere discloses that a carbon material having the lattice spacing as required in dependent Claim 3 can provide improved performance in a secondary power source.

Original dependent Claim 14 requires that the organic electrolyte of the secondary power source contain both a lithium salt and an onium salt. The Office has asserted that this subject matter is obvious in view of a combination of Amatucci and Tsushima (JP 200-228222). The Office has asserted that it would be obvious to take the disclosure of Tsushima and include both a lithium and an onium salt in the presently claimed secondary power source. However, Tsushima nowhere discloses or suggests that a secondary power source containing vapor grown carbon fibers and a negative electrode containing a lithium titanate can provide superior performance. Applicants have demonstrated in Table B above that a secondary power source containing vapor grown carbon fibers and both a lithium salt and an onium salt can provide improved initial capacity density at both 10 mA and 200 mA in comparison to a secondary power source which contains either only a lithium salt or only an onium salt.

How can one of ordinary skill in the art expect that a secondary power source which contains vapor grown carbon fibers, negative and positive electrodes that are different from

one another and different from the structure of the Tsushima disclosure, be improved by the inclusion of an electrolyte which contains both a lithium salt and an onium salt? Applicants submit that the Office has not demonstrated that one of ordinary skill in the art would have a reasonable expectation of success in preparing an improved secondary power source by including both a lithium salt and an onium salt in an electrolyte in a device that contains a negative electrode having a lithium titanate. Applicants respectfully request the withdrawal of the rejection under 35 U.S.C. § 103(a).

Applicants submit the amendment to the claims overcomes the rejections of record and respectfully request the withdrawal of the rejections. Applicants request that all now-pending claims be passed to Issue.

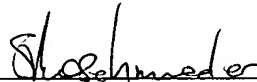
In the Office Action the Office objected to the specification on the grounds that a brief description of Figure 4 is missing. No Figure 4 is present in the specification as originally filed. Applicants request withdrawal of the objection to the specification.

Applicants submitted a Information Disclosure Statement containing a list of related cases in a PTO-1449 on June 10, 2002. The Office has not acknowledged the consideration of the List of Related Cases in the above-identified application or the references provided on the form PTO -1449 by return of signed, dated and initialed copies of the List of Related Cases or the PTO-1449. Applicants request the Office return signed, dated and initialed

copies of both the List of Related Cases and form PTO-1449 with the next communication from the Office indicating that the references provided thereon have been considered in the examination of the above -identified application.

Respectfully submitted,

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